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# *Indian Standard*

# SPECIFICATION FOR EXAMINATION LAMP WITH BULL'S EYE CONDENSER ( FLOOR MODEL )

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**BUREAU OF INDIAN STANDARDS**
**MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG**
**NEW DELHI 110002**

Gr 2 *August* 1969

# *Indian Standard*

# SPECIFICATION FOR EXAMINATION LAMP WITH BULL'S EYE CONDENSER ( FLOOR MODEL)

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# *Indian Standard*

# SPECIFICATION FOR EXAMINATION LAMP WITH BULL'S EYE CONDENSER ( FLOOR MODEL )

## 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 30 May 1969, after the draft finalized by the Optical and Mathematical Instruments Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 Examination lamp with bull's eye condenser is a general purpose illuminating device used by surgeons for examination.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## 1. SCOPE

**1.1** This standard covers the general and functional requirements of examination lamp with bull's eye condenser.

## 2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Base Assembly — A heavy base on which the complete device stands. The base may be fitted with three castor wheels.

2.2 Bracket Assembly — A sliding arrangement which supports the lamp assembly and consists of upper half of an upright, and a ball and socket joint attached to an arm.

2.3 Lamp Assembly-The main part of the device housing the lamp, condenser lens and reflectors, and upper and lower detachable parts of the lamp housing with ventilation holes.

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*Rules for rounding off numerical values ( *revised* ).

## 3. GENERAL REQUIREMENTS

**3.1** Each part of the examination lamp shall be made from material of suitable strength and shall be suitably finished, consistent with the requirement of the store.

**3.2** All metal parts shall preferably be nickel and chromium plated or shall be given any other suitable coating. The nickel and chromium plating shall conform to service grade No. 1 of IS : 1068-1968*.

3.3 Coating and plating on each part shall be durable to resist discolouration, wear, rust and corrosion.

3.4 The dimensions of the threaded portions shall be such as to ensure interchangeability of spare parts.

3.5 All unnecessary sharp edges shall be rounded off.

3.6 When a case is required, it shall be made of a suitable material, preferably wood. The case shall be provided with fitments to accommodate all components and accessories. It shall be such that when the complete device is placed and the lid closed, there shall be no rattling inside the case.

## 4. FUNCTIONAL REQUIREMENTS

4.0 The essential parts of the device shall meet the following requirements.

### 4.1 Base Assembly

**4.1.1** The design and weight of the base assembly shall be such that the whole device is sufficiently stable and balanced. The base may be with or without castor.

4.1.2 The bottom half of the upright shall be rigidly fixed to the base.

**4.1.3** The castor wheels wherever'fitted to the base shall conform to the requirements of IS : 4034-1968†.

### 4.2 Bracket 'Assembly

**4.2.1** The upper half of the upright-shall be able to slide smoothly within the bottom half for adjustment of the height of the lamp.

4.2.2 A clamping device shall be provided to hold the upper half of the upright in any desired position. The device shall be such that it may hold the upper half quite firmly even when fully loaded.

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*Specification for electroplated coatings of nickel and chromium on iron and steel (*first revision*).

†Specification for castors for hospital equipment.

**4.2.3** The upper half of the upright shall be provided with a bracket to carry the lamp assembly.

4.2.4 The bracket shall be of such a length that the lamp assembly, in the course of normal adjustment during use, shall not foul with the upright.

4.2.5 A ball and'socket joint shall be firmly attached at the outer end of the bracket to hold the lamp assembly.

4.2.6 The ball and socket joint shall be capable of holding the lamp housing in any desired position and at the same time the movement shall be easy ands mooth.

4.2.7 An arrangement shall be provided to vary the friction between the ball and the socket thereby permitting adjustment by the user.

4.3 **Lamp Assembly**

**4.3.1** The lamp assembly shall be provided with a 240 volts, 100 watt -frosted lamp. The lamp shall conform to IS : 418-1963*.

4.3.2 The glass used for the manufacture of the condenser lens shall be of a good quality, reasonably colourless and free from strains and bubbles. It shall be of a suitable variety and should be resistant to atmospheric attack. It should also be free from filming and mould growth at the time of supply.

4.3.3 The condenser lens shall have minimum frek aperture of 60 mm.

4.3.4 The condenser lens mount shall be able to slide in and out of its cell smoothly and without any play. When it is completely pushed in, the emergent light shall be a divergent broad bundle of beam of such intensity as to suit all normal conditions of use. However, by sliding out the lens mount, the bundle size shall be reduced ( and the intensity varied ).

4.3.5 The lamp shall be so located that when it is fitted in its holder, the light centre shall be on the axis of the condenser lens.

4.3.6 The interior of the lamp housing and the concave surfaces of the two baffle-plates shall be plated or painted suitably.

4.3.7 Ventilation holes shall be provided in the upper and lower domes, These holes shall be such as not to affect appreciably the strength of upper and lower domes but at the same time maintain a continuous air current for efficient cooling of the assembly.

4.3.8 The lower dome shall be able to take up the bulb holder. It shall also be provided with a handle.

4.3.9 When the clamping screws are reasonably tightened, the lower and upper domes shall not exhibit any play.

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*Specification for tungsten filament general service electric lamps *(second revision )*.

**4.3.10** The electrical chord shall carry a switch direct on the line, positioned very near to the handle.

4.3.11 The lamp assembly shall be earthed.

4.3.12 The angle of rotation of lamp assembly shall be 45” on either side of the vertical.

4.3.13 The maximum and minimum adjustable heights of the lamp’s housing shall be 1 750 mm and 925 mm respectively.

## 5. **TESTS**

**5.1** The device shall initially be examined for the following external defects:

a) Loose, missing or damaged screws, etc; ’
b) Scratched, broken or dirty optical surface of condenser;
c) Damage to lamp assembly,, bracket assembly; and
d) Damage to external finish.

5.2 Castor **Wheels** — The castor wheels shall conform to the tests stipulated in IS : 4034-1968*.

5.3 **Clamping Device** — The clamp shall be reasonably tightened and the top half of the upright shall be held rigidly. When the clamp is loosened, the top upright shall slide freely by its own weight.

5.4 Ball and Socket Joint — The lamp assembly shall be moved about the ball and socket joint and it shall be examined that the motion is smooth without any tendency to stick or slip. When set in any position, the lamp assembly shall stay and shall not move by its own weight or by slight jerk.

5.5 Illumination-The lamp assembly shall be kept at a distance of approximately one metre from a white surfaced wall and the beam made incident perpendicularly on the wall. The illuminated patch shall not show any appreciable non-uniformity of illumination except towards the edges.

## 6. MARKING

**6.1** Each device shall be marked at a suitable place with the name, initials or trade-mark of the manufacturer.

6.1.1 The device may also be marked with the IS1 Certification Mark.

NOTE -The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Ipstitution ( Certification Marks ) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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*Specification for castors for hospital equipment.

## 7. PACKING

**7.1** The device should be dismantled and the various assemblies suitably packed in a specially designed packing case so that the various components inside do not rattle when the package is in transit.

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